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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|------------------------|-----------------------------|------------------|
| 09/864,817 | 05/24/2001 | Stephen A. Constantino | 97046CIPDIV (C0698/7138) | 3443 |
| 7590 11/17/2003 | | | EXAMINER | |
| Martha Ann Finnegan Cabot Corporation 157 Concord Road Billerica, MA 01821 | | | TSOY, ELENA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1762 | |

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/864,817

Applicant(s)

CONSTANTINO ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11-17 and 20 is/are rejected.
- 7) ☒ Claim(s) 5-9, 18, 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 21.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on September 12, 2003 has been entered.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on September 12, 2003 was filed after the mailing date of the Notice of Allowance on June, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 11-17, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Lilley et al (US 4,764,493).

As to claims 1, 2, 17, 20, Lilley et al disclose a method comprising hydrothermally producing barium titanate-based particles for making dielectric components (See column 1, lines 13-16) by reacting titania with barium hydroxide in a protic solvent such as *water* or organic

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alcohols in a closed reactor at temperatures of preferably 100⁰C-125⁰C under autogenous pressure, or at the reflux temperature of the reaction mixture under atmospheric pressure when water or a higher-boiling alcohol is the solvent (See column 3, lines 1-33). Preferably, the reaction is conducted with a molar excess of barium hydroxide, relative to the titanium compound, of 3-10% or greater can be employed, but the use of more than about 1.1 moles of barium hydroxide per mole of titanium compound can present *difficulty in removing excess barium hydroxide at the completion of the reaction, during the washing and recovery of the powders*. Although the concentration of the reactants in the reaction mixture is not particularly critical, the barium hydroxide concentration should be sufficiently high to maintain a **pH** of at least about **11** unless another pH adjuster, such as KOH, is used. At the completion of the reaction, the resultant crystalline BaTiO₃ will generally be in the form of a fine particulate dispersion or suspension in the reaction medium. The particles are recovered by conventional means, such as filtration or centrifugation, followed by washing. The washing step is necessary *to remove excess, unreacted, barium hydroxide from the powders*. See column 4, lines 29-52.

In other words, at the completion of the reaction, the resultant crystalline BaTiO₃ will generally be in the form of a fine particulate dispersion or suspension in the reaction medium having coating of excess of *unreacted barium hydroxide on BaTiO₃ particles, which is difficult to remove from the BaTiO₃ particles*.

Therefore, Lilley reads on a method of claim 1 since the method of Lilley comprises hydrothermally producing barium titanate-based particles, and forming a coating of barium hydroxide (metal hydroxide) on surfaces of the barium titanate-based particles while maintaining the barium titanate-based particles in a wet (aqueous) environment.

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As to claims 11-16, BaTiO₃ particles have *unagglomerated* (spherical) primary particle size of 0.09-0.1 microns (See column 4, lines 57-60). Clearly particle size of BaTiO₃ particles coated with 3-10% of excess of barium hydroxide is less than 0.5 microns.

5. Claims 1-4, 17, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicants admission.

Applicants admitted that hydrothermal processes wherein up to 20 mole percent excess of barium hydroxide is added to a hydrous titanium oxide slurry and heated to 100⁰C -200⁰C to form BaTiO₃ particles, which should be washed to remove unreacted barium hydroxide, are known in the art (See specification, page 7, paragraph 2, page 8, paragraph 1).

Allowable Subject Matter

6. Claims 5-9, 18, 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: the prior art of the record does not teach or suggest coating comprising an oxide, hydrous oxide, hydroxide, or organic acid salt of a metal other than barium (Claim 9). The prior art of record does not teach or suggest a step of washing hydrothermally produced barium titanate-based particles (maintained in a wet environment) prior to coating (Claims 5, 6), or a step of de-agglomerating the coated barium titanate-based particles by high shear (Claims 7, 8), or adding a solution of salt of the metal for precipitating coating (Claims 18, 19).

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

7. Applicant's arguments with respect to reasons for allowance have been considered but are moot in view of the new ground(s) of allowance.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (703) 605-1171. The examiner can normally be reached on Mo-Thur. 9:00-7:30, Mo-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for all communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Elena Tsoy
Examiner
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November 12, 2003